

WHAT IS CLAIMED IS:

1. A method for intelligently caching application or data on a mobile device,  
comprising the steps of:
  - 5 receiving a request to execute or access a set of files, said set of files including an application or data;  
downloading said set of files from a remote server or a gateway if said set of files is not pre-loaded or cached;
  - 10 calculating a cache benefit index for said set of files;  
determining available free space in a local file system;  
caching said set of files in said local file system in accordance with said cache benefit index and available free space;
  - 15 saving corresponding meta information in a database;  
recording said request in said database; and  
returning the location of said requested application in said local file system.
2. The method of claim 1, further comprising the step of:  
searching a storage table in said database for a record that matches said set of  
files to determine whether said set of files is pre-loaded or cached.
- 20 3. The method of claim 1, wherein said downloading step further comprising the steps of:  
opening a communication session with said remote server or said gateway;  
25 sending a download request to said remote server or said gateway;  
receiving a response, said response including said set of files; and  
closing said communication session with said remote server or said gateway.
4. The method of claim 3, further comprising the steps of:  
30 parsing said response to find a broadcast message;  
accessing and updating a storage table in said mobile database in accordance with said broadcast message; and  
sending a broadcast response to said remote server or said gateway.
- 35 5. The method of claim 4, wherein said accessing and updating steps includes the step of:

marking at least one set of files as out-of-date in accordance with said broadcast message.

5 6. The method of claim 1, wherein said step of determining available free space in a local file system includes the steps of:

comparing said cache benefit index to other cache benefit indices associated with already cached applications or data;

10 determining if enough space in said local file system can be generated by removing some or all of said already cached applications or data whose cache benefit indices are less than said cache benefit index; and

removing some or all of said already cached applications or data whose cache benefit indices are less than said cache benefit index if enough space in said local file system can be generated.

15 7. The method of claim 1, wherein said caching step includes the step of: caching said set of files in said local file system if said cache benefit index is greater than a threshold value and said available free space indicates that there is enough space in said local file system to cache said set of files.

20 8. The method of claim 7, further comprising the step of: calculating a current total available cache space after said set of files is cached into said local file system.

25 9. The method of claim 1, further comprising the step of: initiating and maintaining sub-transactions during said downloading, said sub-transactions including application cache space management, data cache space management, and communication transactions.

30 10. A computer program product for intelligently caching application or data on a mobile device, comprising:  
logic code for receiving a request to execute or access a set of files, said set of files including an application or data;  
logic code for downloading said set of files from a remote server or a gateway if said set of files is not pre-loaded or cached;  
35 logic code for calculating a cache benefit index for said set of files;

- logic code for determining available free space in a local file system;  
logic code for caching said set of files in said local file system in accordance  
with said cache benefit index and available free space;  
5        logic code for saving corresponding meta information in a database;  
      logic code for recording said request in said database; and  
      logic code for returning the location of said requested application in said local  
file system.
11.    The computer program product of claim 10, further comprising:  
10        logic code for searching a storage table in said database for a record that  
matches said set of files to determine whether said set of files is pre-loaded or cached.
12.    The computer program product of claim 10, wherein said logic code for  
downloading further comprising:  
15        logic code for opening a communication session with said remote server or  
said gateway;  
      logic code for sending a download request to said remote server or said  
gateway;  
20        logic code for receiving a response, said response including said set of files;  
and  
      logic code for closing said communication session with said remote server or  
said gateway.
13.    The computer program product of claim 12, further comprising:  
25        logic code for parsing said response to find a broadcast message;  
      logic code for accessing and updating a storage table in said mobile database in  
accordance with said broadcast message; and  
      logic code for sending a broadcast response to said remote server or said  
gateway.  
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14.    The computer program product of claim 13, wherein said logic code for  
accessing and updating includes:  
      logic code for marking at least one set of files as out-of-date in accordance with  
said broadcast message.  
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15. The computer program product of claim 10, wherein said logic code for determining available free space in a local file system includes:

logic code for comparing said cache benefit index to other cache benefit indices associated with already cached applications or data;

logic code for determining if enough space in said local file system can be generated by removing some or all of said already cached applications or data whose cache benefit indices are less than said cache benefit index; and

logic code for removing some or all of said already cached applications or data whose cache benefit indices are less than said cache benefit index if enough space in said local file system can be generated.

16. The computer program product of claim 10, wherein said logic code for caching includes:

logic code for caching said set of files in said local file system if said cache benefit index is greater than a threshold value and said available free space indicates that there is enough space in said local file system to cache said set of files.

17. The computer program product of claim 16, further comprising:

logic code for calculating a current total available cache space after said set of files is cached into said local file system.

18. The computer program product of claim 10, further comprising:

logic code for initiating and maintaining sub-transactions during said downloading, said sub-transactions including application cache space management, data cache space management, and communication transactions.